1 9626/12/F/M/17/Q8

Below is part of a spreadsheet Jose has created to model his personal finances.

	A	B
1	$2,600	Wages/salary
2		
3	$120	Utilities
4	$100	Satellite/TV
5	$80	Phone
6	$30	Pet food
7	$1,000	Mortgage/rent
8	$80	Internet
9	$100	Insurance
10	$75	Hair/beauty
11	$550	Groceries
12	$150	Eating out
13	$100	Clothing
14	$40	Cinema
15	$160	Car/travel
16		
17	$2,585	Total outgoings
18		
19	$15	Balance

Using **only** the sort feature explain how you would be able to get the following values in the given cells.

(i) $80 in cell A11 with Internet in cell B11 and $1,000 in cell A3.

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(ii) $100 in cell A8 with Clothing in cell B8.

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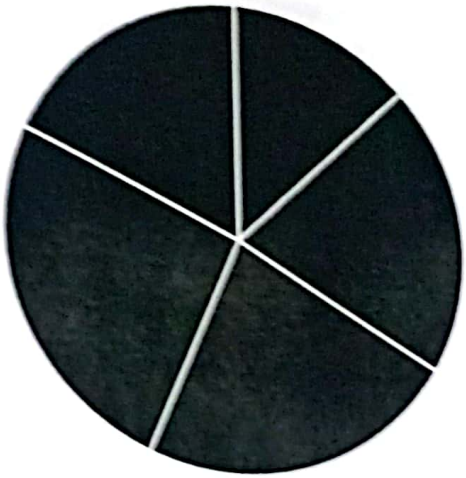
STUDENTS RESOURCE

CamScanner



Above is a pie chart showing the proportion of students following different courses at a school. In its present form it is not providing any information.

Describe, using examples related to this scenario, how you would improve this chart so that it did provide information which could be used by the head teacher of the school.

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STUDENTS RESOURCE

CamScanner

3 9626/13/M/J/17/Q5

Below is an extract from a spreadsheet showing the wages paid in one week to a group of workers. Any hours worked over 40 count as overtime. Overtime is paid at 1.5 times the normal rate.

	A	B	C	D	E	F	G	H
1								
2	Worker's name	Job type	Hours worked this week	Hours overtime worked	Rate per hour paid	Overtime earned this week	Wage paid this week	
3								
4	Johan Braun	Labourer	45	5	$13.00	$97.50	$617.50	
5	Lisa Moran	Skilled	40		$18.00		$720.00	
6	Chi Li	Labourer	40		$13.00		$520.00	
7	Susan Armstrong	Labourer	46	6	$13.00	$117.00	$637.00	
8	Luqman Hisham	Labourer	39		$13.00		$507.00	
9	Kanda Demir	Semi-skilled	40		$15.50		$620.00	
10	Paul Strong	Labourer	43	3	$13.00	$58.50	$578.50	
11	Shoba Purushothaman	Semi-skilled	48	8	$15.50	$186.00	$806.00	
12	Kulap Kaya	Semi-skilled	40		$15.50		$620.00	
13	Tony Fernandes	Skilled	40		$18.00		$720.00	
14	Halim Saad	Semi-skilled	51	11	$15.50	$255.75	$875.75	
15								
16		Workers working overtime	5					
17								

(a) Write down the formula which should be used in cell C16 in order to display the number of workers who worked overtime.

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.....[4]

You can use the space below for any working you need.

STUDENTS RESOURCE
CamScanner

(b) Write down the formula which should be used in cell D4 in order to display the number of *Hours overtime worked* for Johan Braun. The formula should be in a form that can be easily replicated and should leave the cell blank if no overtime has been worked.

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You can use the space below for any working you need.

(c) Write down the formula which should be used in cell F4 in order to display the amount of money earned for working overtime for Johan Braun. The formula should be in a form that can be easily replicated and should leave the cell blank if no overtime has been worked.

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You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

4 9626/13/M/J/17/Q12

Below is part of a spreadsheet Deirdre has created to show her company's profits.

	A	B	C	D	E	F	G
1		DIY Inc.					
2							
3			2012	2013	2014	2015	2016
4							
5		1st quarter	$135,000	$146,000	$158,000	$162,000	$154,000
6		2nd quarter	$142,000	$149,000	$161,000	$167,000	$157,000
7		3rd quarter	$138,000	$150,000	$159,000	$163,000	$151,000
8		4th quarter	$129,000	$141,000	$146,000	$148,000	$147,000
9							
10		Total profits	$544,000	$586,000	$624,000	$640,000	$609,000
11							

Describe, giving reasons, the most appropriate type of graph or chart for displaying:

(i) the company's profits, throughout 2016 showing comparisons of each quarter.

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(ii) the company's profits, showing the trend for all four quarters in each year from 2012 to 2016.

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STUDENTS RESOURCE

CamScanner

Below is part of a spreadsheet Xia has created to model his personal finances.

	A	B
1	2600	Wages/salary
2		
3	1000	Mortgage/rent
4	120	Utilities
5	50	Phone
6	100	Satellite/TV
7	80	Internet
8	550	Groceries
9	100	Clothing
10	150	Eating out
11	75	Hair/beauty
12	30	Pet food
13	40	Cinema
14	160	Car/travel
15	100	Insurance
16		
17	=SUM(A3:A15)	Total outgoings
18	=MAX(A3:A15)	=VLOOKUP(A18,$A$3:$B$15,2,FALSE)
19		
20	=A1-A17	Balance
21		

(a) Identify the value which would appear in cell B18 explaining how you arrived at your answer.

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STUDENTS RESOURCE

CamScanner

(b) Xia is not sure whether the spreadsheet would work if some of the values were changed. Describe the test plan you would use to help Xia make sure there are no errors in his spreadsheet.

[8]

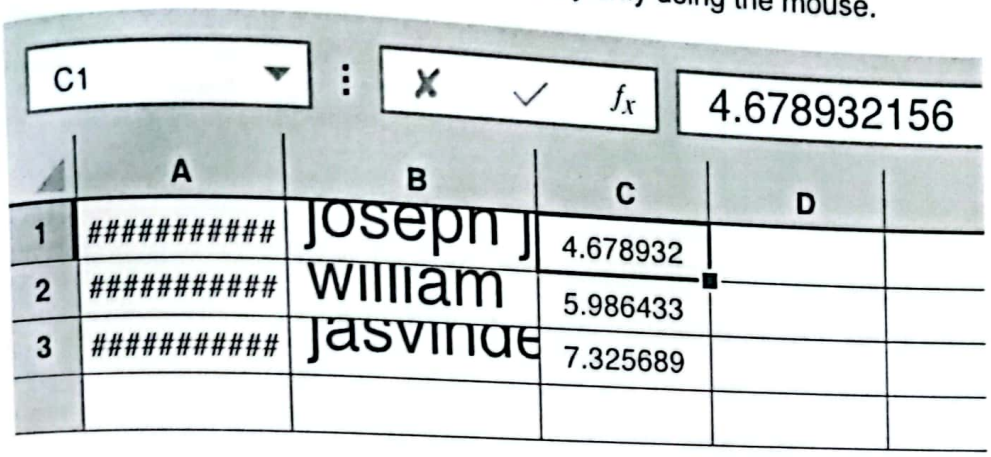
STUDENTS RESOURCE

CamScanner

9626/12/F/M/18/Q8

Jagwant has typed data into a spreadsheet. Part of the spreadsheet is shown below.

For each column, explain in detail why the data is not fully visible, and describe the most efficient way he could use to make all the data fully visible by only using the mouse.



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7 9626/12/F/M/18/Q9

Farzana was given a problem to solve by her maths teacher – 'Add two integers 15 and 16 and then multiply the answer by 45^4.' She has worked out the answer but now wishes to check her answer by using the spreadsheet below.

	A	B	C	D	E	F	G	H
1								
2	15	16	45	4			127119375	
3								

Write down the formula she would have used in cell G2 to produce her answer.

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You can use the space below for any working out.

STUDENTS RESOURCE

CamScanner

8 9626/12/F/M/18/Q11

A company keeps details of their payroll data in a single computer file.

Evaluate the use of spreadsheet and database software to store this data using examples related to payroll for your argument.

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9 9626/12/F/M/18/Q13

Sachin has typed in three dates in column A in the spreadsheet shown below. He has used the formula =TEXT(A1,"dd mmmm yyyy") in C1 and replicated it down. He has used another formula in column E to extract the name of the month from C1.

Write down the formula he used in E1 which he then replicated down to E3 to extract the months shown.

	A	B	C	D	E
1	03/11/2017		03 November 2017		November
2	26/09/2017		26 September 2017		September
3	03/06/2017		03 June 2017		June

= ..... [4]

You can use the space below for any working out.

STUDENTS RESOURCE

CamScanner

Tick the **four** most accurate statements referring to the meaning of data and information.

	✓
Data consists of raw facts and figures.	
Information when processed becomes data.	
Data is a collection of text, numbers, symbols, images or sound.	
Data does not need to have meaning to become information.	
Knowing that 159.5, 164.3, 162.9 and 172.3 are the heights in centimetres of pupils in a school makes it a set of data.	
Data cannot be interpreted until it is organised.	
Data is never represented by binary in a computer.	
Data must have a context to become information.	
Data is the result of processing information, usually by computer.	
A group of facts which are used in context is called a set of data.	

[4]

STUDENTS RESOURCE

CamScanner

11 9626/11/M/J/18/Q8

Juan is the owner of a small company. He has created a spreadsheet to calculate the payroll. His spreadsheet is shown below.

Each worker pays one of four different rates of tax.

Each worker has one of four different tax allowances. A tax allowance is the amount that can be earned before workers start paying tax.

	A	B	C	D	E	F	G	H	I	J
1	Range of tax rates						Tax allowance range			
2							W	X	Y	Z
3	A	20%					200	220	240	260
4	B	30%								
5	C	35%								
6	D	40%								
7										
8										
9	Worker's name	Weekly wage	Tax rate	Tax allowance		Taxable pay	Wage after tax deduction			
10										
11	Patrick O'Reilly	250	B	Y		10	$247			
12	John McDonnell	300	D	Z		40	$284			
13	Louise Gimenez	280	A	X		60	$268			
14	Jeanette Grimault	260	A	Y		20	$256			
15	Xavier Hernandes	250	C	W		50	$233			
16	Paolo Riva	240	B	W		40	$228			
17	David Kennedy	280	D	Z		20	$272			
18	Sian Evans	270	A	Y		30	$264			
19	Karl Gustaffson	260	B	W		60	$242			
20										

(a) To make it easier to do the calculations Juan has used named ranges. The *Range of tax rates* is called **Rate** and the *Tax allowance range* is called **Allowance**.

Describe how you would set up the named range **Allowance**.

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STUDENTS RESOURCE

CamScanner

(b) Each worker has an amount, related to their *Tax allowance*, deducted from their weekly wage to calculate the *Taxable pay*.

Write down the formula that should go in cell F11 to calculate the *Taxable pay* for Patrick O'Reilly. The formula should be easy to replicate and use a named range.

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You can use the space below for any working you need.

(c) The *Taxable pay* is multiplied by the rate of tax to calculate the tax which must be paid, which is then deducted from their *Weekly wage*. The result will be their *Wage after tax deduction.*

Write down the formula that should go in cell G11 to calculate the *Wage after tax deduction.* The formula should be easy to replicate and use a named range. Identify the steps which need to be taken to display the value in G11 exactly as shown in the spreadsheet.

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You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

12 9626/12/M/J/18/Q8

Here is a spreadsheet showing the prices of various toys in a shop. The discounted price is found by using a VLOOKUP formula in cells E8:E13.

E8 =D8-(VLOOKUP(C8,$C$3:$D$5,2,FALSE)*D8)

	A	B	C	D	E	F	G	H
1								
2			Discount code					
3			A	20%				
4			B	15%				
5			C	10%				
6								
7	Toy			Price	Discounted price		Number sold	
8	Elephant		A	$45	$36.00		4	
9	Cheetah		A	$35	$28.00		6	
10	Giraffe		C	$55	$49.50		10	
11	Lion		B	$50	$42.50		5	
12	Leopard		A	$40	$32.00		6	
13	Zebra		B	$30	$25.50		3	
14								
15								
16								

(a) By describing what the formula in cell E8 does, explain the need for absolute and relative cell referencing.

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STUDENTS RESOURCE

CamScanner

(b) The owner of the shop wants to see which toys have a *Discounted price* that could be considered cheap and those that could be considered expensive. He would like to see all the cells with toys which are more than $40 shaded blue, all those that are less than $30 shaded yellow and the remainder shaded green.

Describe how this could be achieved without each individual cell having to be changed.

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(c) The owner wants a chart showing the *Number sold* of each toy as a proportion of the total number of toys sold.

Identify the most suitable type of chart which would be used to show this information and describe how it would be produced.

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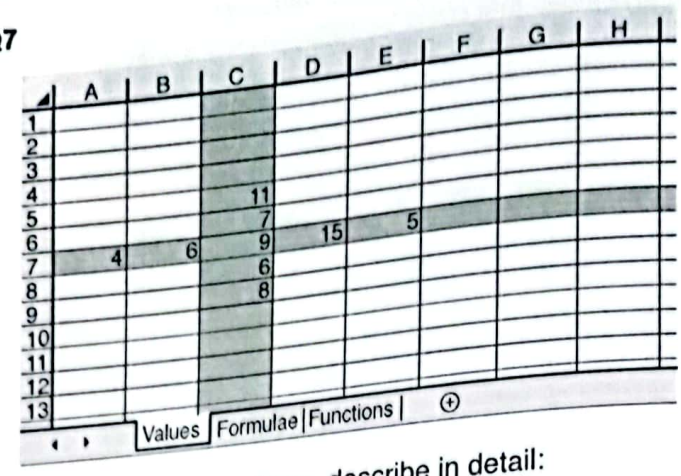
STUDENTS RESOURCE

CamScanner

13 9626/13/M/J/18/Q7



Using examples from the spreadsheet above, describe in detail:

(a) Cells

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(b) Rows

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(c) Columns

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(d) Worksheets

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STUDENTS RESOURCE

CamScanner

Schmidt and Partners own a chain of shoe shops. They pay their workers a weekly wage consisting of a basic wage plus commission. Workers only get paid commission if they have made $500 worth of sales in that week.

The commission is paid at the rate of 10% of the amount of sales made over $500.
Below is a spreadsheet showing some of the workers and the wages they were paid in one week.

	A	B	C	D	E	F	G
1	Sales person	Department	Value of sales	Basic wage	Commission		Total wage
2							
3	Li Chung	Childrens	$550	$50	$5		$55
4	Graham Phillips	Adults	$450	$60			$60
5	Karl Gustaph	Childrens	$700	$55	$20		$75
6	Paula Meldrew	Childrens	$850	$60	$35		$95
7	Shen Bin	Adults	$1,000	$55	$50		$105
8	Ram Babu	Childrens	$350	$45			$45
9	Joan Adams	Childrens	$780	$55	$28		$83
10	Hu Zheng	Adults	$620	$65	$12		$77
11	Louis Raphael	Adults	$420	$45			$45
12	Ambrin Satem	Childrens	$900	$50	$40		$90
13	Tong Mu	Adults	$940	$60	$44		$104
14	Malcolm Novak	Adults	$870	$70	$37		$107
15							
16					$131		

Fig. 1

(a) Write down the formula which should go in cell E4 which is easily replicable. It should calculate the commission earned but leave the cell blank if no commission is earned.

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You can use the space below for any working you need.

(b) The shop manager wants to know the total commission the shop is paying to those workers in the Adults department who sold over $800 worth of shoes.

Write down a conditional formula which should go in cell E16.

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You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

(c) The manager wishes to know the number of workers who did not earn any commission.

Write down the formula he would enter into cell E18 to obtain this value. The formula must work even if the data in the spreadsheet changes in the future.

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(d) When the manager was originally given the spreadsheet by the IT technician it looked as shown in Fig. 2 below:

	A	B	C	D	E	F	G	H
1	Sales per	Departmer	Value of	Basic Wa	Commission		Total wage	
2							55.00	
3	Li Chung	Childrens	550.00	50.00	5.00		60.00	
4	Graham F	Adults	450.00	60.00			75.00	
5	Karl Gust	Childrens	700.00	55.00	20.00		95.00	
6	Paula Me	Childrens	850.00	60.00	35.00		105.00	
7	Shen Bin	Adults	1000.00	55.00	50.00		45.00	
8	Ram Babi	Childrens	350.00	45.00			83.00	
9	Joan Ada	Childrens	780.00	55.00	28.00		77.00	
10	Hu Zheng	Adults	620.00	65.00	12.00		45.00	
11	Louis Ra	Adults	420.00	45.00			90.00	
12	Ambrin S	Childrens	900.00	50.00	40.00		104.00	
13	Tong Mu	Adults	940.00	60.00	44.00		107.00	
14	Malcolm	Adults	870.00	70.00	37.00			
15								
16					131.00			

Fig. 2

Explain, in detail, the features of spreadsheet software he had to use to change its appearance as shown in Fig. 2 to that shown in Fig. 1 (page 8), using the shortest number of steps. The larger column widths became 20 points wide and the narrower one (column F) 12 points.

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STUDENTS RESOURCE

CamScanner

9626/12/O/N/18/Q5

Spreadsheet software enables users to make use of formulas and functions.

Using examples, compare and contrast a formula and a function.

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STUDENTS RESOURCE

CamScanner

16 9626/12/O/N/18/Q8

A secretary has been given a list of product details. She was asked to type the details into a spreadsheet. Unfortunately, when she typed them in, wrong data was entered into cells A7, A10, A16 and B10.

List secretary was given

Product number	Department code
38366614481	B167
14533707617	B132
92648277616	C185
83028907250	A675
99028485231	D132
77662318299	B453
11997211500	E342
71458052066	D543
81391876632	E723
13917086392	Z418
45608392059	M329
54445757756	B132
14050284074	A675
30965517520	E647
43270336250	F341
97118134256	C231

Spreadsheet produced by secretary

	A	B	C	D
1	Product number	Department code		Price
2	38366614481	B167		$383.00
3	14533707617	B132		$145.00
4	92648277616	C185		$926.00
5	83028907250	A675		$830.00
6	99028485231	D132		$990.00
7	76762318299	B453		$767.00
8	11997211500	E342		$119.00
9	71458052066	D543		$714.00
10	8118xy76632	ET23		$811.00
11	13917086392	Z418		$139.00
12	45608392059	M329		$456.00
13	54445757756	B132		$544.00
14	14050284074	A675		$140.00
15	30965517520	E647		$309.00
16	3270336250	F341		$327.00
17	97118134256	C231		$971.00
18				

(a) Describe **four** validation checks which could have prevented these errors from occurring, including a description of how they would have prevented the errors.

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STUDENTS RESOURCE

CamScanner

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(b) The secretary's manager typed a formula into cell D2 to calculate the price of the product which is given at the beginning of each Product number.

Write down the formula which he would have entered in cell D2 and describe how the Price was formatted so that it would appear as it does in the spreadsheet.

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You may use this space for working out.

STUDENTS RESOURCE

CamScanner

17 **9626/12/F/M/19/Q11**

Juanita is the company secretary of a small business in the USA. She has created a spreadsheet to calculate the payroll.
The spreadsheet is shown below.

	A	B	C	D	E	F	G	H	I	J	K	L
1							Roles					
2							L	F	OS	M	D	
3							Labourer	Fitter	Office secretary	Manager	Director	
4							$15	$25	$22	$40	$80	Hourly rate
5		Job codes	Job title	Hours worked	Weekly pay							
6												
7	John Vercoe	L	Labourer	40	$600							
8	Lauren Hall	OS	Office secretary	38	$836							
9	Chloe Rhodes	F	Fitter	39	$975							
10	Owen Williams	OS	Office secretary	42	$924							
11	Lotte Charles	L	Labourer	35	$525							
12	Jeannie Burke	OS	Office secretary	38	$836							
13	Jimmy Lee	F	Fitter	40	$1,000							
14	Dawid Jones	F	Fitter	32	$800							
15	Li Sun Wu	M	Manager	45	$1,800							
16	Charlotte Watson	D	Director	50	$4,000							
17	Joe Norfolk	M	Manager	41	$1,640							
18	Joanne Floyd	F	Fitter	38	$950							
19	Anthony Campbell	F	Fitter	40	$1,000							
20	Linda Stuart	L	Labourer	38	$570							
21	Kate Smith	L	Labourer	37	$555							
22	Sam Smith	OS	Office secretary	40	$880							
23	Duncan Rydell	L	Labourer	36	$540							
24	Tony Thomson	L	Labourer	37	$555							
25	Dougie Ryder	OS	Office secretary	41	$902							
26												

(a) She has created a named range **Roles**

Describe how she created this named range.

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STUDENTS RESOURCE

CamScanner

(b) She entered a formula in E7 using the named range and the information in column B to calculate the weekly pay for John Vercoe.

Write down the formula she used. This formula should be easy to replicate.

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..... [6]

You can use the space below for any working you need.

18 **9626/12/F/M/19/Q13**

Encryption can be used to protect data on a hard disk and in emails.

Evaluate the need for this encryption.

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STUDENTS RESOURCE

CamScanner

19 9626/11/M/J/19/Q9

Paolo is the owner of a small company with ten workers. He is developing a spreadsheet to calculate the payroll. He has started by importing a text file of the workers' names. The list consisted of each worker's family name followed by a comma then a space then their first name.

He wants to split the names into separate family names and first names by finding the position of the comma in each cell in column A.

He has discovered a new function, LOCATE, which gives the position of the first occurrence of a single character in a word.
For example, =LOCATE("e",I4) gives the result 2.

His first attempt at the spreadsheet is shown below.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Name		Position of comma		Family name	First name			Job	Weekly pay		Rate per hour	Hours worked
2													
3	Smith, John								Polishing	450		15	30
4	McDonnell, Louise								Secretary	500		10	50
5	Hernandes, Juan								Welding	450		10	45
6	Kennedy, Sean								Orders	500		16	31.25
7	Gustaffsson, Johan								Fitter	500		20	25
8	Davies, Iueuan								Electrician	550		11	50
9	Lopez, Ramon								Manager	500		25	20
10	Garcia, Isabel								Painting	550		20	27.5
11	Costa, Albertina								Invoices	450		15	30
12	Fernandez, Manela								Sales	550		11	50
13													

(a) Using this LOCATE function, write down the formula he would use in cell C3. The formula must be easy to replicate.

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You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

(b) He will use a formula in cell E3 to produce Smith. Making use of cell C3, write down the formula, **without** using the MID function, which must be easy to replicate.

There must be no spaces, before, or after the name.

= .....[3]

You can use the space below for any working you need.

(c) He will use a formula in cell F3 to produce John. Making use of cell C3, write down the formula, **without** using the MID function, which must be easy to replicate.

There must be no spaces before, or after, the name.

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You can use the space below for any working you need.

(d) Describe the steps he would use to format the Weekly pay column so that the only difference that would be made would be to place a $ sign in front of the value.

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STUDENTS RESOURCE

CamScanner

(e) Using **only** the sort feature on columns I and J, explain how you would be able to get the following values in the given cells. You need to ensure data integrity is maintained.

(i) 500 in cell J6 with Secretary in cell I6 and Davies, Iueuan in A12.

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(ii) 500 in J7 with Orders in I8 and Smith, John in A11.

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STUDENTS RESOURCE

CamScanner

20 9626/12/M/J/19/Q10

An examinations officer has created a spreadsheet containing a list of students and their dates of birth. It will be used to calculate each student's age in years. This is the age that they will be on the date of a science exam which is on 21/05/2019.

	A	B	C	D	E	F	G	H
1								
2	Family name	First name	Date of birth (dd/mm/yyyy)	Age	Number of exams entered for		21/05/2019	
3								
4	Purewal	Sandeep	17/05/2002	17	4		6	number of students aged 17 taking 3 exams
5	Jones	Ieuan	15/10/2001	17	3		4	number of students aged 16 taking 4 exams
6	Astle	Roberta	21/07/2002	16	4			
7	Herreira	David	10/08/2002	16	4			
8	Maninga	Jeff	17/09/2001	17	3			
9	Charlton	Leona	08/03/2002	17	4			
10	van Gaal	Ruud	09/02/2002	17	4			
11	Alonso	Maria	17/11/2001	17	3			
12	Lagat	Mary	10/11/2001	17	3			
13	Kibaki	Robert	13/04/2002	17	4			
14	Mbabasi	Apolo	30/06/2002	16	5			
15	Dansua	Albert	24/06/2002	16	4			
16	Kirshwan	Kiran	30/08/2002	16	3			
17	Patel	Alpa	15/03/2002	17	4			
18	Bhutto	Waseem	14/09/2001	17	3			
19	Abbasi	Akhtar	18/12/2001	17	4			
20	Kunwar	Ishwar	16/01/2002	17	3			
21	al-Hafi	Saad	14/03/2001	18	4			
22	Hala	Bassem	25/05/2002	16	5			
23	Namet	Fawzi	31/05/2002	16	4			

(a) She entered a formula in D4 to calculate the student's age.

Write down the formula she used. This formula should be easy to replicate.

You can assume for the purpose of this exercise that the number of days in a year averages out to 365.25.

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You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

(b) **(i)** The spreadsheet is to be sorted in ascending order of *Age* and then descending order of *Number of exams entered for*.

Write down the values which would be displayed in D9 and E9.

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You can use the space below for any working you need.

(ii) The **original** spreadsheet is to be sorted in descending order of *Age* and then ascending order of *Number of exams entered for*.

Write down the values which would be displayed in D17 and E17.

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You can use the space below for any working you need.

(c) A teacher wanted to know the number of students aged 17 taking three exams.

Write down the formula containing a counting function she used in cell G4 to calculate this number. This formula should work even if the data changes.

= .....[5]

You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

(d) The teacher now wants to know the number of students aged 16 taking four exams.

Write down the formula containing a counting function she used in cell G5 to calculate this number. This formula should work even if the data changes.

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You can use the space below for any working you need.

21 9626/13/M/J/19/Q6

Spreadsheets are commonly used to create models of real situations.

Using examples, explain why the characteristics of spreadsheets are suitable for producing financial models.

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STUDENTS RESOURCE

CamScanner

22 9626/13/M/J/19/Q9

Below is a spreadsheet of a company's balance sheet. It shows its expenditure, income and profit for each year between 2009 and 2018.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Expenditure										
3			Wages	Utilities	Stock		Total expenditure		Income		Profit		
4	2009		350250	54565	475623		€880,438		€925,365		€44,927		very bad year
5	2010		467032	61022	519429		€1,047,483		€1,097,652		€50,169		bad year
6	2011		476414	68124	567178		€1,111,716		€1,185,858		€74,142		bad year
7	2012		512209	75936	619224		€1,207,369		€1,342,020		€134,651		good year
8	2013		553156	84530	675954		€1,313,640		€1,518,483		€204,843		good year
9	2014		648589	93983	737790		€1,480,362		€1,717,886		€237,524		good year
10	2015		732877	104381	805191		€1,642,449		€1,943,211		€300,762		good year
11	2016		774954	115819	878658		€1,769,431		€2,197,828		€428,397		good year
12	2017		838925	128401	958737		€1,926,063		€2,485,546		€559,483		good year
13	2018		868577	142241	1046023		€2,056,841		€2,810,667		€753,826		
14													
15			>2011	<2017									
16													
17		Variable average	644357										
18													

(a) Write down the formula which uses a function, in cell G4, to calculate the *Total expenditure* for 2009.

= .....[1]

(b) The percentage profit is calculated by dividing the *Profit* by the *Income*. The company secretary has entered a formula in M4 which displays a message:

- very bad year, if *Income* was less than €1,000,000
- bad year, if the company's percentage profit was less than 10%
- good year, if the percentage profit was not less than 10%

Write down the formula he used in cell M4 which would be replicated in cells M5 to M13.

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.....[6]

You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

(c) The manager wants to be able to find the *Variable average* of the wages bill for any sequence of years between 2009 and 2018.
He has set up the spreadsheet to calculate the average between 2011 and 2017.
To calculate the average between any other sequence of years he will just change the conditions >2011 and <2017.

Write down the formula he will need to use in C17 to calculate the *Variable average*.

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You can use the space below for any working you need.

23 **9626/11/O/N/19/Q11**

Here is a spreadsheet showing the medal winners at some of the 2016 Olympics swimming events.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Country code	Country name		Gold	Silver	Bronze		Swimmer	Distance	Stroke	Gender	Position	Code of country		Time (secs)	Average speed (m/s)	Name of country
2																	
3	AUS	Australia		1	0	1		Kyle Chalmers	100m	Freestyle	M	1	AUS		47.58	2.10	Australia
4	BEL	Belgium		0	1	0		Pieter Timmers	100m	Freestyle	M	2	BEL		47.80	2.09	Belgium
5	CAN	Canada		1	1	0		Nathan Adrian	100m	Freestyle	M	3	USA		47.85	2.09	United States
6	CHN	China		1	0	0		Penny Oleksiak	100m	Freestyle	F	1	CAN		52.70	1.90	Canada
7	GBR	Great Britain		1	0	0		Simone Manuel	100m	Freestyle	F	2	USA		52.71	1.90	United States
8	RSA	South Africa		0	2	0		Sarah Sjostrom	100m	Freestyle	F	3	SWE		52.99	1.89	Sweden
9	SWE	Sweden		1	1	1		Adam Peaty	100m	Breaststroke	M	1	GBR		57.13	1.75	Great Britain
10	USA	United States		1	1	4		Cameron Van der Burgh	100m	Breaststroke	M	2	RSA		58.69	1.70	South Africa
11								Codey Miller	100m	Breaststroke	M	3	USA		58.87	1.70	United States
12								Sarah Sjostrom	100m	Butterfly	F	1	SWE		55.48	1.80	Sweden
13								Penny Oleksiak	100m	Butterfly	F	2	CAN		56.46	1.77	Canada
14								Dana Vollmer	100m	Butterfly	F	3	USA		56.63	1.77	United States
15								Yang Sun	200m	Freestyle	M	1	CHN		104.65	1.91	China
16								Chad Le Clos	200m	Freestyle	M	2	RSA		105.20	1.90	South Africa
17								Conor Dwyer	200m	Freestyle	M	3	USA		105.23	1.90	United States
18								Katie Ledecky	200m	Freestyle	F	1	USA		113.73	1.76	United States
19								Sarah Sjostrom	200m	Freestyle	F	2	SWE		114.08	1.75	Sweden
20								Emma McKeon	200m	Freestyle	F	3	AUS		114.92	1.74	Australia

(a) Write down the formula which should go in cell D3 to calculate the number of gold medals that Australia won in the events. The formula should be easily replicable to show the number of gold medals won by the other countries.

The formula should work even if the swimmer details are changed.

= ..... [6]

You can use the space below for any working you need.

STUDENTS RESOURCE

CamScanner

(b) The average speed of each swimmer is calculated by dividing the distance swum by the time taken in seconds.

Write down the formula which should go in cell P3 to calculate Kyle Chalmers' speed. The formula should be easily replicable to show the speeds of the other swimmers.

= ..... [5]

You can use the space below for any working you need.

(c) Explain how you would amend the spreadsheet so that the cells between M3 to M20 could only accept the country codes listed. If any other code was input an error message informing the user an error had occurred would be output.

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(d) Explain how you would sort the data so that all the female swimmers were grouped together before the male swimmers and with the furthest distance at the top.

..... [3]

STUDENTS RESOURCE

CamScanner

9626/11/O/N/19/Q12

The principal of a college wishes to keep records of all his students' details including exam scores. He is not sure whether he should use a spreadsheet or a database to do this.

Evaluate the use of databases and spreadsheets for such a task.

[8]

STUDENTS RESOURCE

CamScanner

(b) The average speed of each swimmer is calculated by dividing the distance swum by the time taken in seconds.

Write down the formula which should go in cell P3 to calculate Kyle Chalmers' speed. The formula should be easily replicable to show the speeds of the other swimmers.

= ..... [5]

You can use the space below for any working you need.

(c) Explain how you would amend the spreadsheet so that the cells between M3 to M20 could only accept the country codes listed. If any other code was input an error message informing the user an error had occurred would be output.

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(d) Explain how you would sort the data so that all the female swimmers were grouped together before the male swimmers and with the furthest distance at the top.

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STUDENTS RESOURCE

CamScanner

24 9626/11/O/N/19/Q12

The principal of a college wishes to keep records of all his students' details including exam scores. He is not sure whether he should use a spreadsheet or a database to do this.

Evaluate the use of databases and spreadsheets for such a task.

[8]

STUDENTS RESOURCE

CamScanner

25 9626/12/O/N/19/Q5

Here is a spreadsheet showing the top European goal scorers in the 2018 Football World Cup qualification matches.

	A	B	C	D	E	F	G	H	I	J	K
1						Code of country	Footballer	Name of country	Games played	Goals scored	Average
2						POL	Robert Lewandowski	Poland	10	16	
3						SWE	Marcus Berg	Sweden	11	16	
4						DEN	Christian Eriksen	Denmark	12	16	
5			Country code	Country name		POR	Cristiano Ronaldo	Portugal	9	15	
6			POL	Poland		GRE	Kostantinos Mitroglou	Greece	10	12	
7			SWE	Sweden		ITA	Ciro Immobile	Italy	12	12	
8			DEN	Denmark		BEL	Romelu Lukaku	Belgium	8	11	
9			POR	Portugal		CRO	Mario Mandžukic	Croatia	11	10	
10			GRE	Greece		POR	André Silva	Portugal	10	9	
11			ITA	Italy		ITA	Andrea Belotti	Italy	9	8	
12			BEL	Belgium		DEN	Thomas Delaney	Denmark	12	8	
13			CRO	Croatia		SWI	Haris Seferovic	Switzerland	12	8	
14			SWI	Switzerland		ROI	James McClean	Republic of Ireland	11	8	
15			ROI	Republic of Ireland		SWE	Emil Forsberg	Sweden	12	8	
16			MON	Montenegro		MON	Stevan Jovetic	Montenegro	8	7	
17			NED	Netherlands		NED	Arjen Robben	Netherlands	7	6	
18						BEL	Eden Hazard	Belgium	8	6	
19						ROI	Daryl Murphy	Republic of Ireland	8	6	
20											
21											

(a) Write down the formula which should go in cell H3 to display the name of the country for Robert Lewandowski. The formula must be easily replicable.

= ..... [5]

You can use the space below for any working you need.

(b) Explain, in detail, the steps you would take to amend the spreadsheet so that the players will be put in order of the average number of goals scored per games played for each player. The highest average number should be first in the list.

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STUDENTS RESOURCE

CamScanner

26 9626/12/F/M/20/Q7

Here is part of a spreadsheet showing the earnings of a selection of workers at a company.

E10 =D10*VLOOKUP(B10,jobrate,3,0)

	A	B	C	D	E	F
1						
2			As	Assistant	Standard rate per hour $12	
3			Se	Secretary	$20	
4			Cl	Clerk	$15	
5						
6	Worker ID	Job code	Job type	Hours worked this week	Wage paid this week	
7	42158P	As	Assistant	39	$468	
8	63119M	Se	Secretary	40	$800	
9	63214P	Se	Secretary	35	$700	
10	89261N	Cl	Clerk	36	$540	
11	97643M	As	Assistant	40	$480	

(a) The formula in cell E10 contains a named range, shaded in the spreadsheet.

Describe, step by step, how the named range was created.

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(b) Explain, step by step, what the formula in cell E10 does.

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STUDENTS RESOURCE

CamScanner

(c) Give two reasons why a named range is used.

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(d) Explain, step by step, how to perform a filter on secretaries earning more than $750.

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[6]

STUDENTS RESOURCE

CamScanner

Here is the same spreadsheet showing the formula in cell C7, **VLOOKUP(B7,C$2:D$4,2,0)**.

C7 =VLOOKUP(B7,C$2:D$4,2,0)

	A	B	C	D	E	F
1						
2			As	Assistant	Standard rate per hour $12	
3			Se	Secretary	$20	
4			Cl	Clerk	$15	
5						
6	Worker ID	Job code	Job type	Hours worked this week	Wage paid this week	
7	42158P	As	Assistant	39	$468	
8	63119M	Se	Secretary	40	$800	
9	63214P	Se	Secretary	35	$700	
10	89261N	Cl	Clerk	36	$540	
11	97643M	As	Assistant	40	$480	

(e) By explaining what each part of the formula does, describe how it displays 'Assistant' in C7.

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STUDENTS RESOURCE

CamScanner

27 9626/11/M/J/20/Q12

Here is part of a spreadsheet showing the wages earned by a group of workers in a company.

E3 : ✗ ✔ fx =IF(B3>40,C3*D3*1.5,"")

	A	B	C	D	E	F
1						
2	Workers Number	Hours worked this week	Hours overtime worked	Rate per hour paid	Overtime earned this week	Wage paid this week
3	E41231	52	12	$14.00	$252.00	$812.00
4	C41827	45	5	$12.50	$93.75	$593.75
5	P30731	40		$17.50		$700.00
6	J51549	38		$14.00		$532.00
7	P77168	44	4	$12.50	$75.00	$575.00
8	C43839	42	2	$14.00	$42.00	$602.00
9	E34572	36		$17.00		$612.00
10	E48505	48	8	$17.00	$204.00	$884.00
11	P40813	46	6	$12.50	$112.50	$612.50
12	C32408	39		$12.50		$487.50
13	C69848	41	1	$14.00	$21.00	$581.00

(a) Without referring to other cell references, explain, in detail, what every part of the formulae in cells E3 and E5 do. You may assume that the formula has been replicated down for all workers.

[6]

STUDENTS RESOURCE

CamScanner

(b) This spreadsheet has not been tested.

Describe the test plan you would use to make sure there are no errors in the formulae in column E of this spreadsheet. You can assume that the formula in column C works perfectly and does not need changing.

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(c) Using **only** the sort feature explain how you would be able to make the spreadsheet used in part **(a)** produce this display.

	A	B	C	D	E	F
1						
2	Workers Number	Hours worked this week	Hours overtime worked	Rate per hour paid	Overtime earned this week	Wage paid this week
3	P40813	46	6	$12.50	$112.50	$612.50
4	C41827	45	5	$12.50	$93.75	$593.75
5	P77168	44	4	$12.50	$75.00	$575.00
6	C32408	39		$12.50		$487.50
7	E41231	52	12	$14.00	$252.00	$812.00
8	C43839	42	2	$14.00	$42.00	$602.00
9	C69848	41	1	$14.00	$21.00	$581.00
10	J51549	38		$14.00		$532.00
11	E48505	48	8	$17.00	$204.00	$884.00
12	E34572	36		$17.00		$612.00
13	P30731	40		$17.50		$700.00

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STUDENTS RESOURCE

CamScanner

28 9626/13/M/J/20/Q10

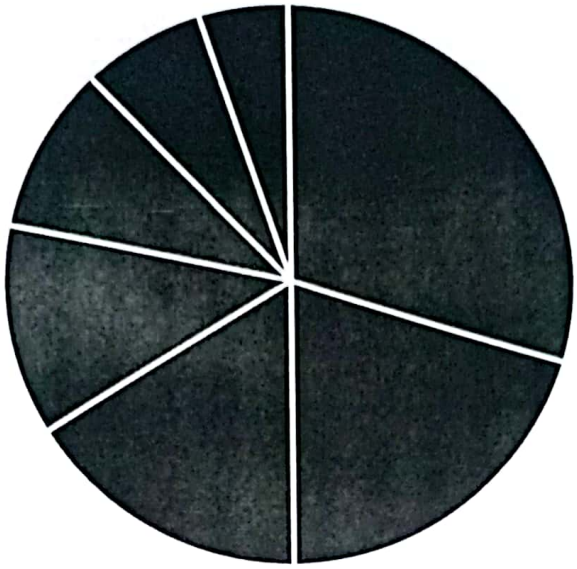
Lastri uses spreadsheet models for her company. She uses them to forecast trends of sales of particular products as well as forecasting the company's annual income, expenditure and profits.

By weighing up the advantages and disadvantages, evaluate the effectiveness of spreadsheet models when used specifically for this type of forecasting.

[8]

STUDENTS RESOURCE
CamScanner

9626/13/M/J/20/Q14



The pie chart shows the land areas of seven continents. In its present form it is not providing any information.

(a) Describe, using examples related to this scenario, how you would improve this chart so that it will provide information which could be used by geography students in a school.

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STUDENTS RESOURCE

CamScanner

(b) Some people are very critical about pie charts.

Describe the disadvantages of using pie charts to represent data.

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30 9626/12/O/N/20/Q3

An IT specialist is employed by a car showroom to manage the spreadsheets which record all details of car sales. Here is a spreadsheet showing some of the cars for sale in a showroom.

E18 =SUMIFS(E5:E15, A5:A15,I6,G5:G15,">"&I8)

	A	B	C	D	E	F	G	H	I
1	Make	Model	Engine (litres)	Licence	Price	Economy (L/Km)	Year made		
2									
3									
4									
5	Daui	2000	1.8	JPY 648	$25,000	18.0	2016		
6	Tiaf	Visette	1.4	FGB 721	$15,500	16.7	2010		Daui
7	Arajug	EX	1.4	FFA 419	$18,000	13.7	2009		
8	Daui	1000	2	BFK 297	$10,500	12.0	2003		2010
9	Tiaf	Firetips	1.2	GFL 364	$11,000	12.1	2012		
10	Tiaf	Firetips	1.2	HDC 684	$12,500	12.3	2013		
11	Arajug	EX	1.2	JYU 381	$42,500	15.5	2016		
12	Daui	2000	1.8	KJN 384	$28,000	18.5	2017		
13	Tiaf	Delrah	1.6	GXL 347	$19,000	16.3	2013		
14	Arajug	JX	1.2	KNN 478	$47,500	16.6	2017		
15	Tiaf	Visette	1.4	LSA 442	$45,000	19.9	2018		
16									
17									
18					53000				
19									

(a) The IT specialist has entered a formula in E18 after receiving a request from the showroom manager.

(i) Write down the information the showroom manager asked for.

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STUDENTS RESOURCE

CamScanner

(ii) Explain, step by step, how the spreadsheet software calculated the result.

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(b) Describe, step by step, how the IT specialist could set up the cell so that the user could just use a mouse to change the input in cell I6.

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STUDENTS RESOURCE

CamScanner

(c) The IT specialist accidentally saved the spreadsheet as a csv file.

(i) Explain what a csv file is.

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(ii) Describe the changes the user would see in the spreadsheet after it is opened again using spreadsheet software.

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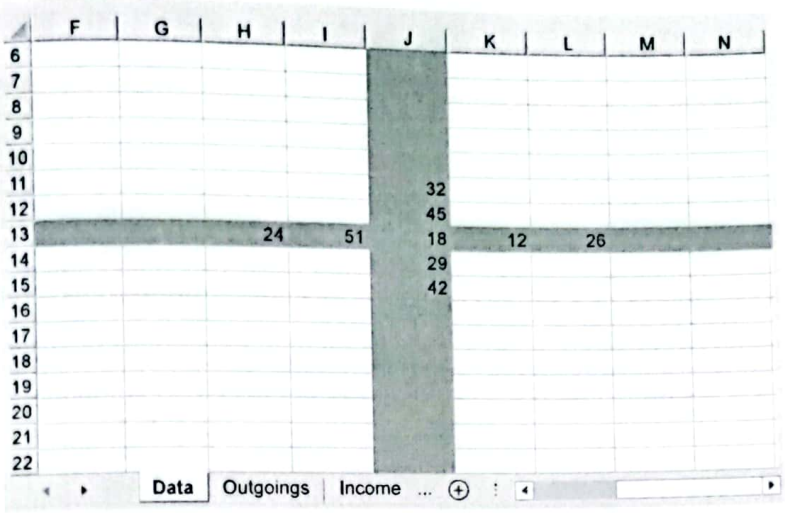
STUDENTS RESOURCE
CamScanner

9626/12/F/M/21/Q12



(a) Explain, using examples from the spreadsheet above and its contents, what is meant by:

(i) cells,

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(ii) rows,

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(iii) columns,

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(iv) worksheets.

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STUDENTS RESOURCE

CamScanner

(b) Apart from their structure, explain why spreadsheets are often used to model household finances.

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STUDENTS RESOURCE
CamScanner

9626/11/M/J/21/Q8

A company sells domestic appliances. The spreadsheet shows the sales of washing machines for the first five months of this year.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Month	Serial Number		Price										
2	Jan	614481		$481		Sales Month	Monthly Total							
3	Jan	707617		$617		Jan	$1,964							
4	Jan	227616		$616		Feb	$1,728							
5	Jan	907250		$250		Mar	$392							
6	Feb	485231		$231		Apr	$815							
7	Feb	318299		$299		May	$1,100							
8	Feb	211500		$500										
9	Feb	052066		$66										
10	Feb	376632		$632										
11	Mar	086392		$392										
12	Apr	392059		$59										
13	Apr	757756		$756										
14	May	284074		$74										
15	May	517520		$520										
16	May	336250		$250										
17	May	134256		$256										
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														

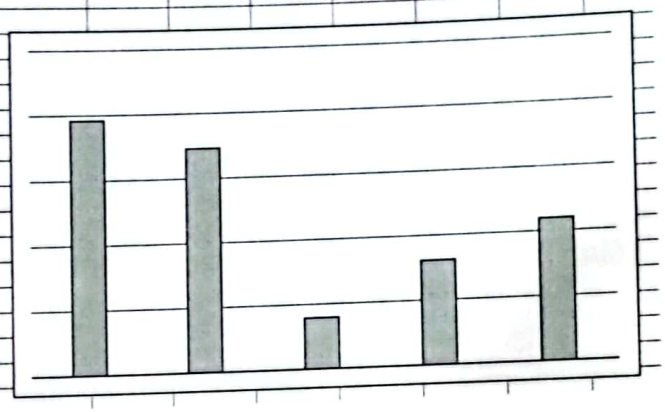

Fig. 8.1

(a) The formula in cell D2 is =VALUE(RIGHT(B2,3)).

Explain, without using cell references, what this formula does.

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..... [3]

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(b) In Fig. 8.1, the formula in cell G3 is =SUMIF(A$2:A$17,F3,D$2:D$17).

Explain, without using cell references, what this formula does.

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(c) The bar chart in Fig. 8.1 lacks information about what it represents. It has been created from contiguous data.

(i) Identify the cell range that was used to create the bar chart.

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(ii) Describe what information should be added to the bar chart.

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(d) Evaluate, by weighing up the advantages and disadvantages, the use of the spreadsheet in Fig. 8.1 for financial forecasting.

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33 9626/12/M/J/21/Q5

Analyse the effectiveness of using a line graph, compared to a vertical bar chart, for showing shopping trends, using the following data.

	2020											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sales ($)	1050	1120	1180	1150	1140	1160	1170	1190	1180	1200	1190	1220

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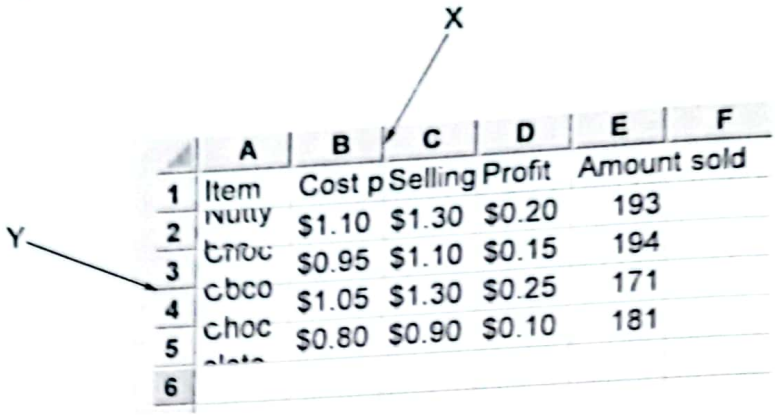
34 9626/12/M/J/21/Q11

The spreadsheet below shows information about sweets that a shop sells. The data has been formatted but the spreadsheet needs some improvements.



(a) Describe, in detail, what would happen within the spreadsheet if the mouse was double-clicked with the pointer positioned at X.

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(b) Describe, in detail, what would happen within the spreadsheet if the mouse was double-clicked with the pointer positioned at Y.

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..... [1]

(c) Originally, the data was entered into the cells in the range B2:C5 as numbers.

Describe the formatting that has been applied to the cells in this range.

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..... [1]

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(d) Validation is to be applied to cells B2 to B5.
This will prevent numbers less than the current minimum value from being entered.
The shop owner will not use a range check or a lookup check.

Name and describe the validation check that will be used.

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..... [2]

5 9626/13/M/J/21/Q8

The spreadsheet shows the values of used cars and the deposits required to buy them.

D2 | =ROUND(C2*10%,0)

	A	B	C	D
1	Car make	Car model	Car value	Deposit required
2	Diap	D5	$4,752.00	$475.00
3	Diap	D1	$6,732.00	$673.00
4	Sentel	M810	$6,655.00	$666.00
5	Sentel	R500	$5,445.00	$545.00
6	Panther	ZE	$8,470.00	$847.00
7	WRM	WB	$10,285.00	$1,029.00
8	WRM	WA	$12,100.00	$1,210.00
9	Diap	D4	$4,235.00	$424.00
10	Panther	ZK	$9,438.00	$944.00
11	WRM	WB	$7,502.00	$750.00
12	Diap	D3	$5,082.00	$508.00
13	Panther	ZJ	$10,890.00	$1,089.00
14	Sentel	G47	$11,374.00	$1,137.00
15	WRM	WB	$10,527.00	$1,053.00

(a) Explain what is meant by the term 'formula'. Refer to the contents of cell D2 in your answer.

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STUDENTS RESOURCE

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(b) Explain what is meant by the term 'function'. Refer to the contents of cell D2 in your answer.

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The spreadsheet has now been sorted.

	A	B	C	D
1	Car make	Car model	Car value	Deposit required
2	Diap	D5	$4,752.00	$475.00
3	Diap	D4	$4,235.00	$424.00
4	Diap	D3	$5,082.00	$508.00
5	Diap	D1	$6,732.00	$673.00
6	Panther	ZK	$9,438.00	$944.00
7	Panther	ZJ	$10,890.00	$1,089.00
8	Panther	ZE	$8,470.00	$847.00
9	Sentel	R500	$5,445.00	$545.00
10	Sentel	M810	$6,655.00	$666.00
11	Sentel	G47	$11,374.00	$1,137.00
12	WRM	WB	$7,502.00	$750.00
13	WRM	WB	$10,285.00	$1,029.00
14	WRM	WB	$10,527.00	$1,053.00
15	WRM	WA	$12,100.00	$1,210.00

(c) Identify the steps that have been taken by a user to produce this sorted spreadsheet.

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9626/13/M/J/21/Q9

Johan has produced a spreadsheet.

Describe **five** advantages of Johan saving the spreadsheet as a csv file compared to saving it as a spreadsheet file.

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STUDENTS RESOURCE

CamScanner

37 9626/11/O/N/21/Q10

The spreadsheet below shows the estimated number of visitors to the different countries in the United Kingdom. The figures shown relate to the months of July and August 2019. The formulae used in column D, to add up the number of visitors to each country, are also shown.

	A	B	C	D	E	F	G	H
1			UK Tourism Figures					
2								
3	Country	CCode1		Total number of visitors (millions)		Date	CCode2	Number of visitors (millions)
4	England	En		10.56		July 2019	NI	0.53
5	Northern Ireland	NI		1.14		July 2019	En	5.10
6	Scotland	Sc		1.25		July 2019	Sc	0.62
7	Wales	Wa		0.81		July 2019	Wa	0.43
8						August 2019	En	5.46
9						August 2019	NI	0.61
10						August 2019	Sc	0.63
11						August 2019	Wa	0.38

Spreadsheet

D
UK Tourism Figures
Total number of visitors (millions)
=SUMIF($G$4:$G$11,B4,$H$4:$H$11)
=SUMIF($G$4:$G$11,B5,$H$4:$H$11)
=SUMIF($G$4:$G$11,B6,$H$4:$H$11)
=SUMIF($G$4:$G$11,B7,$H$4:$H$11)

Column D Formulae

(a) Using this spreadsheet as an example, explain, in detail, what is meant by absolute and relative cell referencing and explain why both are used.

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[8]

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(b) Describe, in detail, how **other** characteristics of spreadsheet software would enable this spreadsheet to be used for modelling purposes. Each characteristic must be different.

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STUDENTS RESOURCE

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38 9626/13/O/N/21/Q2

(a) Tick the most accurate statement referring to software.

	✓
An operating system is an example of application software.	
Software consists of data or computer instructions.	
Software consists of RAM and ROM chips.	
A buffer is an example of application software.	

[1]

(b) Tick the most accurate statement referring to system software.

	✓
A spreadsheet is an example of system software.	
A blu-ray disc is an example of system software.	
A printer driver is an example of system software.	
Control software is an example of system software.	

[1]

(c) A company stores all its sales records in a spreadsheet.

Discuss the benefits and drawbacks of using a spreadsheet for this purpose.

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[6]

STUDENTS RESOURCE

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9 9626/11/M/J/22/Q7

Automatic re-calculation is one of the characteristics of spreadsheet models. This means it is not necessary to evaluate a formula every time you change it.

Describe other characteristics of spreadsheets that make them suitable for creating models.

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